



NASA Procedural Requirements

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NASA Technology Transfer Requirements

Responsible Office: Space Technology Mission Directorate

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Preface

P.1 Purpose

This NASA Procedural Requirements (NPR) document provides guidance for implementing the processes, requirements, and responsibilities for Agency technology transfer activities. As such, it directly supports the technology transfer mission in the NASA Strategic Plan and in NASA's Strategic Space Technology Investment Plan (NASA SSTIP).

P.2 Applicability

- a. This NPR applies to NASA Headquarters and NASA Centers, including Component Facilities, Technical and Service Support Centers, and to the Jet Propulsion Laboratory, a Federal Funded Research Development Center, to the extent specified in its contract.
- b. NASA Headquarters has overall responsibility for the Agency technology transfer activities as well as the local responsibility for technologies developed through Headquarters activities. Each NASA Center is responsible for technology transfer as it relates to that Center's programs and projects, as well as participating in Agency-wide efforts and use of common infrastructure. The technology transfer responsibilities set forth in this policy apply whether programs and projects are performed by recipients of NASA contracts, grants, or cooperative agreements.
- c. In this directive, all mandatory actions (i.e. requirements) are denoted by statements containing the term "shall." The terms "may" or "can" denote discretionary privilege or permission, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.

P.3 Authority

- a. Stevenson-Wydler Technology Innovation Act of 1980, 15 U.S.C. Â§ 3710 et seq., as amended
- b. Bayh-Dole Act (P.L. 96-517), 35 U.S.C. Â§ 200 et seq., as amended
- c. National Aeronautics and Space Act 51 U.S.C. Â§ 20113(a)
- d. Commercial Technology Transfer Program 51 U.S.C. Â§ 50116
- e. Patent Waiver Regulations 14 CFR Subpart 1245.1
- f. Rights to Inventions Made by Nonprofit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements 37 CFR Part 401
- g. Licensing Of Government Owned Inventions. 37 CFR PART 404
- h. Uniform Patent Policy For Rights In Inventions Made By Government Employees. 37 CFR PART 501
- i. Presidential Memorandum, dated October 28, 2011, "Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Businesses"
- j. NPD 1000.3D, The NASA Organization

P.4 Applicable Documents and Forms

- a. 35 U.S.C. Â§ 101 - Inventions Patentable
- b. 35 U.S.C. Â§ 102 - Conditions for Patentability
- c. 35 U.S.C. Â§ 103 - Conditions for patentability; non-obvious subject matter
- d. 35 U.S.C. Â§ 207 - Domestic and Foreign Protection of Federally Owned Inventions
- e. 35 U.S.C. Â§ 200 et seq - Bayh-Dole Act of 1980
- f. NPD 1050.1I - Authority to Enter into Space Act Agreements
- g. NPD 1200.1 - NASA Internal Control
- h. NPD 2090.6 - Authority to Enter Into License Agreements and Implementation of Licensing Authority

- i. NPD 2190.1 - NASA Export Control Program
- j. NPD 2091.1B - Inventions Made by Government Employees
- k. NPD 2200.1 - Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information
- l. NPR 2092.1 - Distribution of Royalties Received by NASA from the Licensing or Assignment of Inventions
- m. NPR 2210.1 - Release of NASA Software
- n. NPR 5810.1 - Standard Format for NASA Research Announcements (NRAs) and other Announcements for Grants and Cooperative Agreements
- o. NPR 7120.8 - NASA Research and Technology Program and Project Management Requirements
- p. NASA FAR Supplement clause 1852.227-70 - New Technology clause.
- q. NASA Form (NF) 1679 - Disclosure of Invention and New Technology (Including Software)

P.5 Measurement/Verification

- a. NASA Headquarters, in conjunction with the Office of Management and Budget (OMB), will establish a set of well-defined metrics to evaluate the performance of Technology Transfer across the agency.
- b. This NPR is used to determine compliance with applicable Federal statutes and regulations and NASA Directives.
- c. Verification of compliance with and effectiveness of this NPR at the Agency level is performed by an independent assessment in conjunction with the NASA Internal Controls Program as defined in, NASA Internal Control.
- d. Verification of compliance with and effectiveness of this NPR at NASA Centers, programs, and projects is based on the results of the audits, reviews, and assessments performed. This includes adequate, timely, and effective response to action items, findings, and corrective action plans, as well as tracking repeat findings and overall trends identified during audits, reviews, and assessments.
- e. Implementation of this NPR is subject to periodic audit and assessment by an independent organization.

P.6 Cancellation

- a. NPD 2110.1F, Foreign Access to NASA Technology Transfer Materials. November 20, 2008.
- b. NPR 7500.1, NASA Technology Commercialization Process, December 20, 2001.
- c. NPD 7500.2B, NASA Innovative Partnerships Program, July 17, 2009.

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Chapter 1: Technology Transfer Overview

1.1 National Perspective

1.1.1 The benefits of NASA technology are all around us: Knowledge provided by weather and navigational spacecraft; millions of passengers and packages traveling safely by air every day; efficiency in ground and air transportation; super computers; solar- and wind-generated energy; the cameras in many cell phones; biomedical technologies such as advanced imaging and infant formula; and the protective gear that keeps our military, firefighters, and police safe have all benefitted from the Nation's investments in aerospace technology.

1.1.2 The United States Government makes efforts to ensure that these benefits from federally funded technologies continue to improve the lives of U.S. citizens. This is accomplished, in part, through the process of transferring the federally funded technologies to the private sector. Multiple executive orders and laws support and guide the means by which technology transfer occurs.

1.1.3 This directive is, in part, NASA's method of ensuring that its activities are conducted within the multitude of requirements set forth in the various executive orders and laws pertaining to technology transfer.

1.1.4 A key tenet of the national emphasis on technology transfer is collaboration. Executive Order 12591 states: "The head of each Executive Department and Agency, to the extent permitted by law, shall encourage and facilitate collaboration among Federal laboratories, State and local Governments, universities, and the private sector, particularly small business, in order to assist in the transfer of technology to the marketplace." It is understood that technology transfer occurs through partnerships, collaboration, and sharing of information. Technology transfer, therefore, is not the responsibility of only one office at NASA; rather, it is an activity in which all NASA personnel could and should participate.

1.1.5 This sentiment is echoed in foundational technology transfer legislation. As set forth in the Stevenson-Wydler Technology Innovation Act of 1980, 15 U.S.C. § 3710 a.1-a.3, "it is the continuing responsibility of the Federal Government to ensure the full use of the results of the Nation's Federal investment in research and development." To this end the Federal Government shall strive where appropriate to transfer federally owned or originated technology to State and local Governments and to the private sector. Furthermore, technology transfer, consistent with mission responsibilities, is a responsibility of "each laboratory science and engineering professional, and each laboratory director shall ensure that efforts to transfer technology are considered positively in laboratory job descriptions, employee promotion policies, and evaluation of the job performance of scientists and engineers in the laboratory."

1.1.6 The Nation benefits from technology transfer, and it is NASA's charge to ensure that it is strategically positioned, building upon a legacy of transferring space and aeronautics technologies for public benefit.

1.2 NASA Perspective

1.2.1 NASA technology transfer is focused on creating benefits for society through transferring the Agency's inventions and innovative knowledge to outside organizations. This focus is consistent with NASA's fundamental statutory direction as expressed in the National Aeronautics and Space Act, 51 USC 20101, to preserve "the role of the United States as a leader in aeronautical and space science and technology" and encouraging "the fullest commercial use of space" by providing for the "widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

1.2.2 NASA encourages and enables the widest possible utilization of NASA technological assets by public and private sectors of the United States to benefit the national economy and the U.S. public.

1.2.3 Technological assets are the broad category of resources that include technologies, inventions, innovations, technical data, and technical expertise.

1.2.4 The term "invention" describes a new, useful process, machine, manufacture, composition of matter, or improvement thereof, that is a new technology deemed legally to be novel and non-obvious to others skilled in the same field and meets the requirements for patentability under all patent statutes, and that is recognized as the result of some unique idea or conception in the form of a process, machine, manufacture, composition of matter or product derived from ordinary skill, knowledge or craftsmanship.

1.2.5 The term "innovation" is broader than invention and will be used to describe every technology, invention, and discovery whether or not patentable, made in the performance of NASA work (e.g., work by NASA employees and/or work funded by NASA). This includes, but is not limited to, new processes, machines, manufactures, and compositions of matter, and improvements to, or new applications of, existing processes, machines, manufactures,

and compositions of matter. This also includes new computer programs, and improvements to, or new applications of, existing computer programs, whether or not copyrightable

1.2.6 A significant portion of this directive is devoted to the reporting and collection of new innovations--often the key technologies that become the building blocks of a strong technology transfer process.

1.2.7 All NASA activities involving existing or future technological assets could potentially be involved in the technology transfer process. The process' end objective for each activity is the same--that of maximizing each activity's commercial impact.

1.2.8 Technology transfer can happen in a variety of ways, sometimes broadly and informally through the publishing of information, and other times more formally, through partnerships or the licensing of intellectual property.

1.2.9 All of NASA's technology activities are conducted in accordance with NPD 2190.1 NASA Export Control Program.

1.3 The technology transfer activities conducted by NASA are intended to facilitate domestic utilization of NASA-developed technologies by the public and private sectors of the U.S. economy. Consequently, NASA generally does not provide NASA technology information material to foreign entities; however, special situations or circumstances may arise that would allow information to be released in this manner. General inquiries and specific requests for NASA-developed technologies from foreign entities will be handled and documented in accordance with this policy.

Chapter 2: Roles, Responsibilities and Resources

2.1 NASA Chief Technologist

2.1.1 The NASA Chief Technologist is responsible for the overall management of this directive as well as for the following:

- a. Ensuring that all NASA technology transfer program activities are in compliance with NPR 7500.1.
- b. Providing strategic guidance and leadership with regard to NASA technology transfer activities.
- c. Serving as the Headquarters point of contact for Center Technology Transfer Officers (See Section 2.4) and serving as the Agency's Inter-Agency interface for technology transfer matters.
- d. Developing and maintaining well-defined metrics for measuring the performance of technology transfer Agency-wide.
- e. Providing an Agency-wide information system for collecting and maintaining NASA technology transfer data and metrics.
- f. Communicating the societal benefits of NASA's technology transfer activities.
- g. Providing the necessary guidance, templates, and tools to establish and maintain an agency-wide integrated portfolio of NASA technologies and a common, consistent format for communicating to external parties across centers with regards to NASA Technology Transfer.

2.1.2 The Chief Technologist may delegate this authority.

2.2 Mission Directorate Associate Administrators, Program Managers, and Project Managers

2.2.1 Mission Directorate Associate Administrators, Program Managers, and Project Managers are responsible for the following:

- a. Developing methods for identifying new innovations developed under their cognizance and ensuring that they are reported to the Center Technology Transfer Officer (See Section 2.4) in a timely manner.
- b. Supporting the NASA Chief Technologist and Center Technology Transfer Officers in conducting technology transfer activities related to innovations previously developed, or being developed, under their cognizance. Support includes but should not be limited to:
 - (1) Promptly identifying and reporting new innovations as they are realized; recommending potential commercial/secondary applications for use of these innovations.
 - (2) Encouraging innovator engagement in technology transfer and commercialization activities.
 - (3) Developing and implementing technology development partnerships that lead to other commercial uses of NASA sponsored research and technology, and
 - (4) Designating a point of contact in each Space Flight and Research & Technology Program to serve as a Technology Transfer Liaison, responsible for interfacing with the Center Technology Transfer Officer to ensure that program activities related to the development and transfer of NASA technologies are coordinated with Center Technology Transfer Offices.

2.3 NASA Center Directors

2.3.1 NASA Center Directors are responsible for the following:

- a. Implementing a technology transfer program within their respective Centers consistent with the provisions of 15 U.S.C. 3710, this NPR, and all other applicable laws and regulations.
- b. Appointing a Center Technology Transfer Officer (CTTO) responsible for ensuring that all Center technology transfer activities are conducted efficiently, effectively and in compliance with this policy.
- c. Including in the position description and performance plans of all individuals contributing to the development of new technology and related processes (e.g., program/project managers, scientists, technology transfer specialists,

procurement officers, intellectual property attorneys), a statement delineating their responsibilities with regard to NASA technology transfer.

d. Providing support for appropriate utilization of Center technological assets for the benefit of the U.S. economy. Reimbursable work not geared toward the transfer of identified NASA innovations is the responsibility of the Field Center, and not within the scope of the Technology Transfer Officer.

e. Demonstrating that technical staff, Contracting Officers, and Management have been trained in their responsibilities for New Technology Reporting.

2.4 Center Technology Transfer Officers

2.4.1 The Center Technology Transfer Officer, or delegate, is responsible for

the following:

a. Contributing to development and maintenance of a robust portfolio of NASA intellectual property assets with commercial potential to preserve NASA's ability to license inventions arising from NASA-funded research or development in which NASA has an ownership interest, in accordance with NPD 2090.6.

b. Dispositioning all New Technology Reports received with regards to technology transfer, addressing items such as ownership of rights, commercial potential, technology transfer plans, intellectual property protection and/or NTR closure. Documenting all NTR dispositions in NASA Technology Transfer System (NTTS) database (see Section 2.7)

c. Collecting, validating, providing and maintaining quality and accurate technology transfer data within the Agency-wide technology transfer information management system (see Section 2.7).

d. Managing resources, staff and organization necessary to execute the above two functions as needed for their Centers and in contribution to the Agency's technology transfer efforts.

e. Ensuring, to the extent feasible, awareness at their Centers that new innovations must be reported.

f. Developing and implementing mechanisms to ensure that new innovations are reported fully and in a timely manner.

g. Identifying potential technology transfer licenses and partnerships and providing valid and current data on those activities, including the investment estimates where appropriate.

h. Collecting and reviewing available data on technology transfer licenses and partnerships to determine if these activities have produced any significant commercialization results.

i. Supporting the Chief Technologist in any metrics reporting activities to the NASA Administrator, the Administration, the U.S. Congress, or other stakeholders as needed.

j. Consulting with Center Patent/Intellectual Property Counsel, or their designee(s), early in the licensing process so that complete, effective, and timely legal review can be accomplished, and informing Counsel of significant issues throughout the licensing process, particularly when any substantive changes to the NASA standard license agreement(s) are being considered, so Counsel (or designee) can assist, as needed, in the negotiation of any such changes.

k. Supporting Agency-wide Technology Transfer Program activities, including participating in Agency-wide pilots and initiatives, regular participation in Agency-wide working groups, and working, when possible, to bundle intellectual property assets for the increased benefit of partners and licensees.

l. Appointing a New Technology Representative, responsible for processing of disclosures of innovation by civil servants and/or recipients of NASA contracts, grants, or cooperative agreements, including issuing, acknowledgement of receipt, distribution and coordinating reviews.

m. Engaging in partnerships with local, state, and regional organizations to promote technology transfer.

m. Conducting commercialization and technical viability assessments for technologies that have potential for transfer to industry.

n. Preparing application assessments for selected research and development projects in which the center is engaged and which in the opinion of the center may have potential commercial applications.

o. Reporting center technology transfer activities to their respective Center Management and NASA Headquarters.

2.4.2 The Center Technology Transfer Officer is responsible for ensuring that all technology transfer activities at their respective Centers are conducted efficiently, effectively and in compliance with applicable U.S. laws and regulations, and this policy.

2.5 NASA Office of the General Counsel and Center Intellectual Property Counsels

2.5.1 The Associate General Counsel, Commercial and Intellectual Property Law Practice Group, (for Headquarters activities) and Center Patent/Intellectual Property Counsels (for Center activities) are responsible for:

- a. Reviewing all activities in support of the requirements of this NPR for compliance with applicable laws, regulations and policy.
- b. Protecting the intellectual property assets Agency-wide and/or of their respective Centers.
- c. Making patentability assessments, including prior art searches, as needed, or as recommended by the Center Technology Transfer Officer or his/her delegate.
- d. Timely filing and prosecution of patents on NASA-owned and jointly-owned intellectual property, based primarily on taking into account the recommendations of the Center Technology Transfer Officer or his/her delegate in determining the commercial potential of the technology.

2.6 NASA and Partner Innovators

2.6.1 A NASA Innovator is a NASA employee who conceives of or assists in the development of a new innovation. The NASA employee inventor is responsible for:

- a. Reporting the innovation according to policy set forth in NPD 2091.1 "Inventions Made by Government Employees."
- b. Assisting the Center Technology Transfer Officer, or delegate, in determining the commercial potential for the innovation.
- c. Working with Center Patent Attorneys, as needed, if the invention is to have a patent application filed on it, so as to obtain appropriate protection for the invention.
- d. Working with the Center Technology Transfer Officer, or delegate, to pursue potential technology transfer opportunities.
- e. Pursuing, if feasible, technology transfer partnerships that could further benefit and/or develop the innovation.

2.6.2 A Partner Innovator, as used herein, is an employee of a NASA Partner who makes an innovation in the performance of work under a NASA-funded contract, grant or cooperative agreement. The NASA Partner is responsible for reporting these innovations in accordance with the requirements of their contract, grant or cooperative agreement, where applicable.

2.7 NASA Technology Transfer System (NTTS)

2.7.1 The NTTS is the Agency-wide database that will be used to document and track all activities related to the process of technology transfer. Center Technology Transfer Officers are responsible for ensuring, to the extent feasible, that data in the system are complete and accurate.

2.8 NASA Chief Financial Officer and Center Chief Financial Officer

2.8.1 The NASA Chief Financial Officer (CFO) and Center CFOs are responsible for:

- a. Developing guidelines for NASA accounting and distribution of royalties and other payments received under license agreements.
- b. Ensuring funds obtained pursuant to licensing agreements be dispersed in accordance with NPD 2092.1 and NPR 2092.1.

Chapter 3: Documenting NASA-Developed Technology

3.1 Overview of NASA-Developed Technology

What qualifies as a new NASA-developed innovation is very broad. It includes any invention, discovery, improvement, or innovation that was made in the performance of NASA work. This includes any new and useful processes, machines, manufacture, or composition of matter; or any new and useful improvement in existing processes, machines, manufacture, or compositions of matter, whether or not patentable. Also included are new computer programs, and improvements to, or new applications of, existing computer programs, whether or not copyrightable. A representative list of new innovations includes, but is not limited to: new or improved techniques, products, devices, materials, methods, processes, chemical compositions, systems, machines, apparatuses, articles, fixtures, tools, or software. With such a broad definition, new innovations can come from almost any type of NASA activity. In addition, new innovations may occur at a system, subsystem, or component level. The development of a "system" or overall "technology area" could, therefore, yield numerous innovations. Each contract, grant or agreement defines what is a reportable subject innovation and/or item.

3.2 Engagement with NASA Community to Support Technology Reporting

3.2.1 NASA program managers, project managers, and innovators shall engage the technology transfer process at all stages of technology development, ensuring that technology transfer is considered at the earliest phases of program and project formulation and acquisition planning. This is ultimately achieved by ensuring that new innovations being developed by projects at a Center are brought to the attention of the Center Technology Transfer Officer on a timely and consistent basis.

3.2.2 To the extent feasible, the Center Technology Transfer Officer shall ensure awareness at their Center that new innovations (including software) are reported. Requirements:

- a. Reporting is required of NASA employees by NPD 2091.1B;
- b. Recipients of NASA contracts, grants or cooperative agreements shall report new innovations by the terms of their award.
- c. Reporting shall be done prior to public disclosure, publication, or presentation, allowing the Center's Patent Counsel to file a patent application prior to possible statutory bars being set which may preclude patent protection.

3.2.3 Benefits of reporting new innovations are:

- a. Reporting new innovations allows the Center's Intellectual Property Counsel to determine ownership and whether intellectual property protection is appropriate and/or available;
- b. Identification of a new innovation can result in benefits to the U.S. economy and to NASA;
- c. Identification of a new innovation may provide professional recognition;
- d. Reporting provides the possibility for monetary incentive awards for the innovators; and
- e. Increased visibility and utility for the innovation can come from publication in NASA Tech Briefs.

3.2.4 While reporting new innovations is the responsibility of every employee of NASA, the Center Technology Transfer Officer should strive to have in place mechanisms to ensure that new innovations are reported fully and in a timely manner, to promote successful technology transfer to the greatest extent possible. Mechanisms might include, but are not limited to:

- a. Review of documents to be published to determine if new technology was created in the course of the work described, in parallel with requirements of NPD 2200.1.
- b. Engagement with the Contracting Officer's Representative (COR) to ensure that all new technology is reported before a contract, cooperative agreement or grant is closed.
- c. Recognition and awards for New Technology Reports (see below) and patents.
- d. Routine educational outreach and training sessions for technical staff, New Technology Representatives, CORs and program and project managers.

3.3 New Technology Reports (NTRs)

3.3.1 In order to facilitate and minimize the burden of reporting, NASA has developed an electronic New Technology Reporting (e-NTR) capability. e-NTR ([http:// ntr.ndc.nasa.gov](http://ntr.ndc.nasa.gov)) provides desktop and Web-based tools which allow the innovator to prepare and work on the New Technology Report locally and, when ready, the NTR is electronically submitted to a Center's New Technology Representative, who will in turn ensure that it is complete and entered into the NASA Technology Transfer System (NTTS). 3.3.2 Although the electronic filing is the preferred submission method, new innovations can also be reported with a form. NASA Form (NF) 1679, is the preferred form. However, NASA Partners may use their own invention disclosure forms as long as the form provides information equivalent to that requested in NF 1679. NASA contractors, grantees, and recipients can submit NF 1679 or other appropriate reporting forms to the NASA New Technology Representative named in the contract, grant, or cooperative agreement. 3.3.3 In reporting new innovations, identify only those people who have made a direct and unique contribution to the conception of the innovation. To be a joint inventor, one should have contributed to the conception of the claimed invention. 3.3.4 New innovations (including software) shall be reported by: a. Civil servants during the course of their work, as soon as they realize they may have developed a new innovation and before public disclosure. b. Large business commercial firms awarded NASA contracts, grants, or cooperative agreements, to the extent required in the New Technology Clause in award. The New Technology Representative, in accordance with NFS 1852.227-72, is responsible for ensuring that New Technology reporting requirements are being met according to the terms of the contract. c. Small business, nonprofit organizations, colleges, and universities awarded NASA procurement contracts, grants, or cooperative agreements to the extent required in the Patent Rights Clause in the contract, grant, or cooperative agreement. The New Technology Representative, in accordance with NFS 1852.227-72 is responsible for ensuring that New Technology reporting requirements are being met according to the terms of the contract. d. Other NASA Partners, if required by the subject agreement. 3.3.5 Appendix B further describes the requirements associated with NASA's New Technology Reporting.

Chapter 4: Pursuing Intellectual Property Protection

4.1 Determining the Commercial Potential of a Technology

4.1.1 NASA will pursue intellectual property protection, consistent with available resources, on technologies with commercial potential, for which NASA has an ownership interest, to enable licensing of NASA's intellectual property in accordance with NPD 2090.6, "Authority To Enter Into License Agreements and Implementation of Licensing Authority".

4.1.2 Commercial potential is tied to the value of the technology--its potential benefits, its advantages in the marketplace, and its impact on profitability. A variety of technical, market, and intellectual property issues can be addressed when assessing value. Secondary sources of information (e.g., published data, market research reports, Internet searches) and primary sources may be probed. Primary sources include inventors, experts, end-users, and potential licensees. Experts can be found in industry, academia, and Government laboratories.

4.1.3 Assessment of commercial viability can be formulated in a variety of ways. Some general questions that may be addressed include:

- a. Does the technology add value throughout the supply chain?
- b. Does it make a product that is better than the existing and emerging technologies?
- c. Is someone willing and able to develop and build, and someone willing to buy the end product, and will both realize increased value?
- d. Can the technology be commercialized while a market opportunity exists?

4.1.4 As an example, one method of assessing commercial potential is to consider the following two factors: the technology's commercialization readiness (internally determined); and the technology's market readiness (externally determined).

a. Commercialization readiness--If a technology has been successfully demonstrated in an advanced prototype, it is much more likely to gain the attention of the market. If the innovation is merely a concept, even a good one, the prospective technology adopters may not give it much credence.

b. Market readiness--Evaluation for market readiness is primarily based on externally gathered data. Favorable market acceptance is judged by the following factors:

- (1) Can the technology be developed into a product that meets a substantiated need?
- (2) Have companies been identified that can and will take the technology from its current stage of development to a commercial product (or cause this to happen)?
- (3) Can the adopting companies commercialize the technology at a cost and price that will provide an acceptable return on investment?
- (4) Have sufficient end users been identified that not only need the innovation but are willing to pay an acceptable price to provide a reasonable profit margin?

4.2 Patentability Assessments

4.2.1 Prior to pursuing patent protection on an invention described in an NTR, a determination will be made as to whether or not the invention is patentable. Patentability assessments are typically made by a NASA Intellectual Property/Patent Counsel or Attorney. A patentability assessment should take into account the following criteria:

a. Patentable Subject Matter: The invention will fall into a category of subject matter deemed patentable under U.S. Patent Law. Patentable inventions are broadly defined in 35 U.S.C. § 101, as "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof."

b. Novelty: Is the invention novel? Pursuant to 35 U.S.C. § 102, the invention should not have been patented before. Also, if the invention has been publically disclosed in a publication, or in public use, on sale, or otherwise made publically available, prior to filing a patent application, a statutory bar that would preclude receiving a patent may result. A prior art search may be necessary to determine if there are any patents or public information that would deem the invention to not be "novel."

c. Non-obviousness: Patents are also only granted to inventions that would not be considered "obvious" to those

with "ordinary skill" in the relevant technical area, as set forth in 35 U.S.C. § 103. An assessment should also be done, typically by the Center Patent Counsel or her delegate, to determine if the invention can pass this legal test before a patent is pursued.

4.2.2 Once deemed patentable, a determination to pursue patent protection should be based primarily on the commercial potential and marketability of a technology. This analysis and recommendation is the responsibility of the Center Technology Transfer Officer.

4.2.3 NASA considers technology transfer the primary justification for patent protection.

4.2.4 As stated in section 2.5, patentability assessments, including prior art searches, are the responsibility of the Center Patent Counsel or her delegate. The Innovator should work with the Center Patent Counsel to ensure that she has all the information that is readily available to make an accurate assessment.

4.3 Invention Rights Determination

4.3.1 For NASA employees' inventions, the determination of the respective rights of the Government and the employee in the invention, will conform to policy as set forth by NPD 2091.1B.

4.3.2 For NASA Partners' inventions, the type of entity performing the work (i.e., small business, large business, college or university, or nonprofit organization) and the partnership vehicle and terms will determine the invention rights. Typically, recipients of NASA contracts, grants, or cooperative agreements who develop a technology under a NASA-funded contract or agreement have, at their option, the right to either elect to retain title to the NASA-funded invention (small business, college or university, or nonprofit organization) or to petition to obtain title to the invention through the NASA waiver process (large business). However, recipients of NASA contracts, grants, or cooperative agreements that obtain/retain title to NASA-funded inventions through the election or waiver process are required by law to file patent applications and pursue commercial utilization of the inventions, either directly or through a licensee or assignee.

4.3.3 NASA managers contemplating commercialization of a technology should consult their Center's Intellectual Property/Patent Counsel to determine the respective rights of the Government and its contractors, grantees, and recipients in NASA-funded technologies.

4.3.4 Given how closely NASA employees and NASA Partners' employees work together, some inventions may be jointly invented, and therefore jointly owned by both NASA and a NASA Partner. In such cases the inventive contribution of each party should be completely understood and documented. For inventions that are determined to be truly jointly owned, the NASA and Non-NASA entity should, when appropriate, also enter into a "joint ownership agreement" to determine who will pursue the needed intellectual property protections to encourage technology transfer.

4.4 Intellectual Property Protections for Software

4.4.1 Generally, NASA does not patent software, but in the rare occasions that it does, the software must meet the statutory patentability standards, such as novelty and non-obviousness. Before patenting software, the center Technology Transfer Officer should determine that patenting and licensing is consistent with NASA's patent strategy, and is the most effective method for transferring this technology for the greatest public benefit.

4.4.2 Although there is no U.S. copyright protection available for works produced solely by civil servant employees (U.S. Government Works), the Government may however assert foreign copyright in such works. Further, the Government can receive and hold copyrights (both U.S. and foreign) that are transferred to it by assignment. Under FAR-based contracts, NASA has the right under the Agency FAR supplement clause to direct a contractor to assert copyright over software and assign such ownership over to the Government.

4.4.3. Criteria for the evaluation and transfer of software should follow the requirements set forth in NPR 2210.1.

Chapter 5: Partnerships for Technology Transfer

5.1 Partnerships for Technology Transfer

5.1.1 The main objective of a NASA technology transfer partnership is to work collaboratively with public and private sector entities to advance utilization of NASA technology for commercial and non-commercial applications. The intent of a NASA technology transfer partnership is to foster technology research and development (R&D) and product commercialization to ensure broader utilization of NASA technology investments for government, non-government, or mutual use. Therefore, a technology transfer partnership should specifically involve the further development, testing, evaluation and/or transfer of NASA technology to meet these objectives.

5.1.2 Legal instruments to be applied to a NASA technology transfer partnership are: Reimbursable and Non-reimbursable Space Act Agreements, Cooperative Agreements, and Cooperative Research and Development Agreements; all of which may be executed in conjunction with a license, and/or software usage agreement. For a full listing of partnership mechanisms, see Appendix D. In general:

- a. The partnership will be documented in a form which, at a minimum, substantiates the relationship between the partner and NASA;
- b. The partnership should typically include NASA or JPL and at least one of the following parties: another Federal Agency, a contractor, or a grantee or recipient acting under an appropriate legal instrument, such as a contract, grant, cooperative agreement, or Space Act Agreement;
- c. The partnership should have an intent of either transferring a NASA-derived technological asset or providing support for a private sector or university-derived technological asset; and
- d. The partnership will anticipate the transfer of technical know-how or data from NASA to the other entity.

5.2 Foreign Access to Technology Transfer Materials

5.2.1 The technology transfer activities sponsored by NASA are intended to facilitate domestic utilization of NASA-developed technologies by the public and private sectors of the U.S. economy. Consequently, NASA generally does not provide NASA technology information material to foreign entities; however, special situations or circumstances may arise that would allow information to be released.

5.2.2 General Inquiries: Inquiries from foreign organizations or individuals concerning access to the philosophy, organization, procedures and facilities/activities of the NASA Technology Transfer Program or concerning NASA technology development products are normally be answered by the Center's Technology Transfer Office. Center Technology Transfer Offices should keep accurate records of all foreign inquiries and should consult with their Center counterintelligence officer whenever they have a concern about the appropriateness or legitimacy of a request.

5.2.3 Requests for NASA-developed Technology: Normally, requests from foreign organizations or individuals for NASA technology information (e.g., technical support packages) handled under NASA's Technology Transfer Program will be denied. However, special situations may arise (such as inquiries regarding public health and safety or where special circumstances accrue economic benefit to the U.S.) that lead to NASA cooperation with foreign organizations. Such situations may be handled by the Center Technology Transfer Office, which shall coordinate and consult with the Center Counterintelligence Office and the Center Export Administrator prior to approval and release.

5.2.4 In cases where foreign inquiries relate to NASA-developed technologies which are known to have been already transferred and/or licensed, requests may be referred to the known U.S. user or licensee or to other U.S. companies active in the field. In cases involving cooperative international activities, NASA technology information can be provided to foreign entities if necessary to fulfill a NASA responsibility in an international agreement (e.g., Government-to-Government, Agency-to-Agency). In such instances the transfer would be in accordance with the terms of such agreement and the NASA Export Control Program as per NPD 2190.1 and would be effected/managed by the relevant Mission Directorate program manager(s), in consultation with the Headquarters or Center Export Administrator.

5.2.5 Additionally, foreign companies which express a bona fide interest in obtaining a royalty-bearing license under a NASA-owned patent or patent application may be furnished both the standard published material and additional but non-export controlled technical information to the extent necessary to negotiate and execute such a license. The need for furnishing such material and additional information will be established by the Office of the General Counsel, NASA Headquarters, in consultation with the Office of International and Inter-Agency Relations.

5.2.6 Each Center will keep accurate records of all requests for, and releases of, technology transfer materials and immediately report any suspicious requests to their Center's counterintelligence office.

Chapter 6: Patent and Copyright Licensing

6.1 Overview of Licensing Authority

6.1.1 Pursuant to 35 U.S.C. § 207, Federal agencies are authorized to grant exclusive, partially exclusive, or nonexclusive licenses on federally owned inventions. It is NASA's policy, consistent with statutory requirements, to promote the transfer and commercial utilization of inventions arising from NASA-funded research or development in which NASA has an ownership interest by the licensing of such inventions.

6.1.2 All technology licensing should be accomplished in accordance with NPD 2090.6, Authority to Enter into License Agreements and Implementation of License Authority. Patent License Agreements are utilized when patent protection exists or is being pursued for a given technology or set of technologies. Copyright License Agreements are utilized for software technologies when a copyright assignment to NASA has been made, or copyrights are otherwise owned by NASA. Software Usage Agreements are also available for dissemination of NASA developed software, as described in NPR 2210.1.

6.2 Disseminating Information on Technologies Available for Licensing

6.2.1 Mechanisms that can be made available to Innovators and Technology Transfer Office personnel to disseminate information about their technologies may include but are not limited to:

- a. Showcasing partnering opportunities to potential industry partners at trade shows;
- b. Promoting partnering opportunities through NASA wide and Center specific websites, such as the NASA Technology Transfer Portal (<http://technology.nasa.gov>);
- c. Targeting companies by direct mail who are in an industry that can benefit from NASA technology;
- d. Showcasing the technology at business seminars with high-level corporate executives, entrepreneurs or investors;
- e. Targeting companies in different industries through magazines and public service announcements;
- f. Publishing the opportunities in NASA's key publications to include: Tech Briefs, Innovation magazine and Spinoff;
- g. Utilizing press releases featuring new technologies

6.3 Identifying Potential Licensees

6.3.1 Potential Licensees can be identified in a variety of ways. Innovators and Technology Transfer personnel should be encouraged to attend conferences and other types of meetings where contact is likely to be made with potential commercial technology partners and/or licensees.

6.3.2 The Center Technology Transfer Officer will strive to maintain relationships with regional and/or relevant organizations that could potentially assist with identifying entrepreneurs or other organizations who are able to and interested in commercializing NASA developed technology.

6.3.3 When feasible, the Center Technology Transfer Officer can also implement workshops, conferences, showcases, on-site demonstrations, websites, auctions and/or other forms of outreach to facilitate connections between potential licensees, innovators, and Technology Transfer personnel that can explain the benefits of a particular patented or copyrighted technology.

6.4 License Negotiations and Terms

Certain terms and conditions of License Agreements are negotiable including license fees, royalty rates, minimum payments and commercialization milestones. Center Technology Transfer Officers, or designee, in coordination with Center Intellectual Property/Patent Counsel shall be responsible for negotiating License Agreements. All License negotiations should follow NASA policy as set forth in NPD 2090.6.

6.5 Distribution of Royalties

NASA may receive royalties or other payments as a result of the licensing or assignment of inventions. NASA, in accordance with law, will distribute a percentage of such royalties and other payments it receives to the U.S. Government employee inventors and to individuals who have directly assigned their undivided interests in a licensed

invention to NASA. The remainder of any royalties or other payments, after payment to the employee or other individual inventors, shall be made available to the NASA Center(s) where the inventions were made. Royalties will be distributed according to guidelines set forth in NPD 2092.1.

Chapter 7: Tracking Partnership and License Results

7.1 Tracking Partnerships and Technology Transfer Licenses

All active licenses should be monitored by the Center Technology Transfer Officer or delegate to ensure that terms, such as commercialization schedule and milestones, are met. If terms are not being met, the license can be terminated (in accordance with procedures set forth in the license). In the case of exclusive licenses, this means the patents/copyrights could be licensed to another party for the same field of use.

7.2 Reporting Success Stories

7.2.1 The Center Technology Transfer Officer shall, to the extent feasible, collect and review available information on technology transfer partnerships to determine if that partnership has produced any significant commercialization results that could lead to a NASA "Success Story."

7.2.2 Technology transfer success stories are defined as those technology transfer partnerships that have actually achieved an "acknowledged use or application" of the related NASA technological asset. At least one of the following impacts should have resulted from the acknowledged use:

- a. Commercial sales;
- b. Cost savings/avoidance;
- c. Private investment;
- d. Jobs created/saved;
- e. Quality of life and health improvement;
- f. Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) sales of product, services to the private sector;
- g. SBIR/STTR Phase III procurement contracts within the federal Government;
- h. Public safety improvements;
- i. New or improved products/processes; or
- j. New markets or market expansion.

7.2.3 Once identified, success stories should be reported to the Center Technology Transfer Officer who will report out to the Chief Technologist.

7.2.4 Selected success stories are published in NASA Spinoff, Innovation Magazine and on the NASA Technology Transfer Portal, which can be accessed at <http://technology.nasa.gov>.

Chapter 8: Performance Management and Reporting

8.1 Technology Transfer Metrics

8.1.1 NASA Headquarters, in conjunction with OMB, will maintain a set of well-defined metrics to evaluate the performance of Technology Transfer across the Agency. Typical metrics may include, but are not limited to:

- a. Number of New Technology Reports
- b. Processing Time for Certification of New Technology Reports
- c. Number of Applications Patents Filed
- d. Number of Patents Issued
- e. Number of Technology Transfer Partnerships
- f. Number of Patent Licenses
- g. Percentage of Portfolio Licensed
- h. Number of Copyright Licenses
- i. Number of Software Usage Agreements
- j. Number of Success Stories

8.1.2 NTTS will be the prime source for generation of metrics necessary for any reporting requested by OMB, GAO or Congress or other parts of the U.S. Government.

8.2 Reporting Requirements

8.2.1 NASA Headquarters will provide Center Technology Transfer Officers with a quarterly report of the metrics derived from NTTS data. Center Technology Transfer Officers will respond within two weeks of receiving these metrics reports with any corrections that are needed.

8.2.2 Center Technology Transfer Officers will respond within 2 weeks to all other Headquarters requests for information on technology transfer activities within the Center.

Appendix A: Definitions:

Agreements: In the broad context of this NPR, an Agreement includes any transaction the Space Act authorizes NASA to conclude (i.e., contracts, leases, grants, cooperative agreements, or other transactions). Agreements are signed legal instruments that generally enable collaborative exchange or partnerships to facilitate sharing, exchange, lease, transfer, or commercialization of technology, information, services, expertise, goods, equipment, or facilities. Also see the definition for Space Act Agreement (SAA) below. Some common partnership agreements are defined below and in the Space Act Agreement (SAA) Handbook NAI 1050-1C NASA Advisory Implementing Instruction, Space Act Agreements Guide

Center Technology Transfer Officer (CTTO): NASA employee who is located at a NASA Field Center who is responsible for ensuring that all Center technology transfer activities discussed in Chapter 2.4 of this NPR are conducted efficiently, effectively and in compliance with this NPR. The CTTO also serves as the chief Technology Transfer liaison with the NASA HQ technology transfer program.

Commercial: As paraphrased from the National Space Policy of the United States of America (June 28, 2010), the term "commercial" for purposes of this policy, refers to goods, services, or activities provided by private sector enterprises that bear a reasonable portion of the investment risk and responsibility for the activity, operate in accordance with typical market-based incentives for controlling cost and optimizing return on investment, and have the legal capacity to offer these goods or services to outside customers.

Contractor Innovator: An employee of a NASA Contractor who makes an innovation in the performance of work under NASA-funded grant, contract, or agreement.

Cooperative Agreements: Cooperative Agreements between NASA and NASA Partners support research and development and provide technology transfer from the Government to the recipient. Projects that normally result in cooperative agreements are projects that are not intended to provide direct benefit to NASA, are expected to benefit the general public, require substantial cost sharing and have commercial applications and profit generating potential. Cooperative agreements are awarded in accordance with NPR 5810.1, and the procedures in the Grant and Cooperative Agreement Handbook (14 CFR § 1260) accessible at: https://prod.nais.nasa.gov/pub/pub_library/granta.html#1260123

Cooperative Research and Development Agreements (CRADAs): A CRADA is a mechanism whereby non-federal entities (industry, universities, nonprofits, etc.) can collaborate with federal laboratories on research and development projects. CRADAs are advantageous when technology transfer is a primary goal of the agreements; or technologies developed under CRADAs are expected to be transferred to the private sector for commercial exploitation, either by the non-federal partner or another licensee. Use of CRADAs is authorized by the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480). NASA has statutory authority to enter into CRADAs, but generally does not use this authority when NASA's and the Partner's technology transfer objectives can be met through a Space Act Agreement (SAA).

Domestic Space Act Agreements: Agreements between NASA and a non-government U.S. entity.

Funded Agreements: Agreements under which appropriated funds are transferred to a domestic Agreement Partner to accomplish an Agency mission. Funded Agreements may be used only when the Agency's objective cannot be accomplished through the use of a procurement contract, grant, or cooperative agreement.

Inter-Agency Agreements (IAAs): IAAs are reimbursable or non-reimbursable agreements in which the Partner is another Federal Agency or Department.

International Agreements are Nonreimbursable Agreements or Reimbursable Agreements wherein the Agreement Partner is a foreign entity. "Foreign entity" means a legal entity that is not established under a state or Federal law of the United States and includes a commercial or noncommercial entity or person or governmental entity of a foreign sovereign. International Nonreimbursable Agreements are generally governed by international law, while International Reimbursable Agreements are generally governed by U.S. Federal law. Regardless of the choice of governing law, however, NASA's performance of its responsibilities under any agreement is subject to applicable U.S. laws.

International Traffic in Arms Regulations (ITAR): ITAR pertains to the set of regulations that control the export and temporary import of defense articles and services. The ITAR (22 CFR § § 120-130) is promulgated under the authority of the Arms Export Control Act (22 USC § § 2778, et seq.). The authority for these controls has been delegated to the Secretary of State by Executive Order 11958, as amended (42 Fed. Reg. 4311).

Memoranda of Agreement (MOA) or Memoranda of Understanding (MOU): MOA or MOU are forms of non-reimbursable Space Act Agreements that express the intent to collaborate. Either title may be used at the

request of a U.S. State or Federal Government entity.

Metrics: Measures of success as prescribed by the Technology Transfer Annual Performance Goals (APG's) in the annual NASA performance plan. A metric is a measure taken over a period of time that communicates vital information about the status or performance of a system, process, or activity. A metric can drive appropriate action.

NASA-Developed Technology: Technology that is created, developed or refined by a NASA employee, or by an individual or entity receiving NASA funding (e.g. contractor, grantee, recipient of a cooperative agreement or other NASA funds), or by an external collaborative partner of NASA (e.g. under a Space Act Agreement). The technology is considered NASA-developed whether or not the US Government holds title to the invention.

NASA Innovator: A NASA employee who conceives of or assists in the development of a new innovation .

Nondisclosure Agreements (NDAs): NDAs provide the mechanism to share or exchange enabling technical details of technology with potential licensees without that disclosure undermining the patentability of the technology.

NASA Technology Transfer System (NTTS): The NTTS is the Agency-wide database that is used to document and track all activities related to the process of technology transfer.

New Technology: A new NASA-developed, or NASA-funded innovation, including any invention, discovery, improvement, or innovation made in the performance of NASA work in accordance with Chapter 3.1.1 of this NPR.

New Technology Reports (NTRs): Reports of new technologies or innovations filed using the electronic New Technology Reporting (e-NTR, preferred), or NASA Form 1679 Disclosure of Invention and New Technology (Including Software). NASA Partners may use their own invention disclosure forms as long as the form provides information equivalent to that requested in NF 1679.

New Technology Representative: The individual responsible for processing innovation disclosures and NTRs by civil servants, external partners, contractors, and grantees. Activities include issuing acknowledgements to NTR filers, coordinating reviews, tallying statistics, and reporting metrics.

Nonreimbursable Agreements involve NASA and one or more Agreement Partners in a mutually beneficial activity that furthers the Agency's missions, wherein each party bears the cost of its participation, and there is no exchange of funds between the parties. Since Nonreimbursable Agreements involve the commitment of NASA resources, the respective contributions of each Agreement Partner must be fair and reasonable under the circumstances.

Partnerships: Technology transfer partnerships are collaborations among the Government, industry, academia, and nonprofit organizations wherein each party commits resources to accomplish agreed-to objectives and shares the risks and rewards of the endeavor.

Partner Innovator: An employee of a NASA Partner who makes an innovation in the performance of work under a documented, legal partnership agreement, whether funded or un-funded.

Principal Investigator (PI): A PI is a person who conceives an investigation and is responsible for carrying it out and reporting its results. In some cases, PIs from industry and academia act as collaborative partners or managers (project managers) for smaller development efforts with NASA personnel providing oversight. [Ref: NPR 7120.8]

Program: A strategic investment by a Mission Directorate or Mission Support Office that has a defined technical approach, requirements, funding level, and a management structure that initiates and directs one or more projects. A program defines a strategic direction that the Agency has identified as critical. [Ref: NPR 7120.8, NASA Research and Technology Program and Project Management Requirements (w/change 3 dated 04/18/13).]

Project: An official project is a specific investment identified in a Program Plan having defined requirements, a life-cycle cost, a beginning, and an end. A project yields new or revised products that directly address NASA's strategic needs. [Ref: NPR 7120.8]

Reimbursable Agreements: Agreements wherein NASA's costs associated with the undertaking are reimbursed by the Agreement Partner (in full or in part). NASA undertakes Reimbursable Agreements when it has unique goods, services, and facilities not being fully utilized to accomplish mission needs, which it can make available to others on a noninterference basis, consistent with the Agency's missions.

Software Usage Agreements (SUAs): SUAs provide a mechanism for NASA to authorize the release and use of software created by or for NASA. External release of NASA software must comply with NPR 2210.1.

Space Act Agreements (SAAs): SAAs document any transaction the Space Act authorizes NASA to conduct (i.e., collaborative partnerships, contracts, leases, grants, cooperative agreements, or other transactions). SAAs establish a set of legally enforceable promises between NASA and the Partner to the SAA requiring a commitment of NASA resources (e.g. goods, services, facilities, or equipment) to accomplish stated objectives. SAAs include

non-reimbursable, reimbursable, and funded Space Act Agreements authorized under the Space Act of 1958 and subsequent legislation. Work performed under the SAA often involves technology development or technology transfer. SAAs are implemented in accordance with NPD 1050.11.

Stakeholders: Stakeholders include any parties with an interest in the outcome of a program or project. Stakeholders of the NASA Technology Transfer Program include internal and external customers, private sector and commercial beneficiaries, and the general public who may benefit from NASA technologies or a stronger economy, new products, businesses, and markets from the transfer and commercialization of government technologies, services and expertise.

Success Stories: Technology transfer or commercialization success stories result from NASA partnerships or innovations that have produced an "acknowledged use or application" from the related NASA technological asset or collaboration.

Technology Readiness Level (TRL): The TRL provides a scale against which to measure the maturity of a technology. TRLs range from 1, Basic Technology Research or Concept, through TRL of 6 (i.e., technology demonstrated in a relevant environment) to TRL of 9, Systems Test, Launch, and Operations. It is often easier to transfer and commercialize NASA technologies at mid or higher TRL levels. (Ref: NPR 7123.B, Appendix E for more information on TRL levels and technology assessment or the NASA Systems Engineering Handbook NASA/SP-2007-6105, Appendix G, for basic guidance of conducting Technology Readiness Assessments.)

Appendix B: New Technology Reporting Requirements

B.1 The Government does not license "inventions," per se, but licenses patents and patent applications on inventions, including software, owned by the Government. The Government also licenses copyrights in software when the Government has had the copyrights assigned to them, or when the copyrights are otherwise owned by the Government. In general, the Government owns inventions made by its employees as a result of their employment.

B.2 Reporting of inventions by Government employees is covered in NPD 2091.1, . Such disclosure should be made through the NASA electronic New Technology Reporting (e-NTR) system available at <http://invention.nasa.gov/>.

B.3 The Government may also own inventions made under Federal funding agreements. Funding agreements include contracts, grants, and cooperative agreements for the performance of experimental, developmental, or research work and also includes subcontracts thereunder.

B.4 NASA's policy with respect to inventions made in the performance of NASA funding agreements with small business firms, colleges, universities, and nonprofit organizations (hereinafter referred to as "small entities") is based on the Bayh-Dole Act (35 U.S.C. 200 et. seq.). The Bayh-Dole Act allows small entities that are a party to a funding agreement with a Federal agency to elect to retain title to inventions made under the funding agreement.

B.5 The following are the typical reporting requirements for contractors. The requirements differ slightly for grants and cooperative agreements, and those details can be found in NASA's Grants and Cooperative Agreements Handbook.

B.5.1 Based on the Bayh-Dole Act, the Patent Rights clause in funding agreements with small entities (FAR clause 52.227-11 as modified by NASA FAR Supplement clause 1852.227-11) requires the small entity contractor or subcontractor (hereinafter referred to as contractor), to:

- a. Disclose each "Subject Invention" to the Federal agency (through the NASA New Technology Representative identified in the funding agreement) within 2 months after the inventor discloses it in writing to the contractor's personnel responsible for patent matters (a "Subject Invention" is defined in the Patent Rights clause to mean any invention or discovery of the contractor, which is or may be patentable, conceived or first actually reduced to practice in the performance of work under the contract).
- b. Elect in writing whether or not to retain title to any such invention by notifying the Federal agency within 2 years of its disclosure to the Federal agency. However, where the 1-year period referred to in section 102(b) of Title 35 would end before the end of that 2-year period, the period for election may be shortened by the Federal Agency to a date that is not more than sixty days prior to the end of that 1-year period (consult your Center's Patent Counsel if you believe this situation, which may create a statutory bar to patenting, applies);
- c. File its initial patent application on a subject invention to which it elects to retain title within one year after election of title, or, if earlier, prior to the end of any statutory bar period; and
- d. Include the Patent Rights clause in any subcontract with a small entity or the New Technology clause (NASA FAR Supplement clause 1852.227-70) in any subcontract with a large entity.
- e. Submit on request periodic reports on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the contractor or its licensees or assignees. Such reports will include information regarding the status of development, date of first commercial sale or use, gross royalties received by the contractor, and such other data and information as the agency may reasonably specify.

B.6 The Government has the right to receive title to subject inventions made by small entity contractors, upon written request:

- a. If the contractor has not disclosed the invention within the time specified in the clause;
- b. In any country where the contractor does not elect to retain rights or fails to elect to retain rights to the invention within the time specified in the clause;
- c. In any country where the contractor has not filed a patent application within the time specified in the clause;
- d. In any country where the contractor decides not to continue prosecution of a patent application or pay maintenance fees on an issued patent; and
- e. In any country where the contractor no longer desires to retain title.

B.7 Once NASA obtains titles to inventions, NASA may file patent applications and license the applications and any resulting patents obtained.

B.8 NASA's policy with respect to inventions made in the performance of NASA funding agreements with other than a small entity (i.e., large businesses, hereinafter referred to as "large entities") and the allocation of related property rights is based on Section 20135 of the National Aeronautics and Space Act (51 U.S.C. 20135). In accordance with the Space Act, the Federal Government owns inventions made under NASA funding agreements with large entities. However, the Administrator may grant the contractor a waiver of title in accordance with the NASA Patent Waiver Regulations (14 CFR Part 1245, Subpart 1). For NASA funding agreements with large entities, it is the policy of NASA to waive the rights of the United States to acquire title in and to any subject invention (with the reservation of a Government license) if the Administrator determines that the interests of the United States will be served.

B.9 The "New Technology" and "Request for Waiver of Rights to Inventions" clauses (NASA FAR Supplement clauses 1852.227-70 and 1852.227-71, respectively) are included in all NASA funding agreements with large entities if the funding agreement has as a purpose the performance of experimental, developmental, research, design, or engineering work. Under these clauses, for the contractor to obtain title to an invention, it shall:

a. Disclose each "Reportable Item" to NASA (through the NASA New Technology Representative identified in the funding agreement) within two months after the inventor discloses it in writing to the contractor's personnel responsible for administration of the New Technology clause or, if earlier, within six months after the contractor becomes aware that a reportable item has been made (A "Reportable Item" is defined in the New Technology clause to mean any invention, discovery, improvement, or innovation of the contractor, whether or not patentable or otherwise protectable under Title 35 of the United States Code, conceived or first actually reduced to practice in the performance of any work under any NASA contract. Reportable items include, but are not limited to, new processes, machines, manufactures, and Compositions of matter, and improvements to, or new applications of, existing processes, machines, manufactures, and compositions of matter. Reportable items also include new computer programs, and improvements to, or new applications of, existing computer programs, whether or not copyrightable or otherwise protectable under Title 17 of the United States Code.);

b. Petition for a waiver of title to an identified invention within eight months of first disclosure of the invention to the Federal agency;

c. Include the Patent Rights clause in any subcontract with a small entity or the New Technology clause in any subcontract with a large entity.

B.10 If the contractor fails to disclose or receive a waiver, or file a patent application in accordance with the funding agreement or waiver, the Government retains title to the invention. In such cases, NASA may file patent applications and license the applications and any resulting patents obtained.

B.11 Contractors will submit on request periodic reports on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the contractor or its licensees or assignees. Such reports will include information regarding the status of development, date of first commercial sale or use, gross royalties received by the contractor, and such other data and information as the agency may reasonably specify.

B.12 NASA's goal is to provide the widest practicable and appropriate dissemination, early utilization, expeditious development, and continued availability of NASA-funded and -developed technology for the benefit of the United States scientific, industrial, and commercial communities and the general public. Many commercially valuable technological advances have resulted from innovations developed under NASA funding agreements. In order for NASA to achieve this goal, NASA shall be able to identify and monitor such technologies, and assert intellectual property rights if appropriate. Therefore, the Technology Reporting requirements in NASA funding agreements with large entities typically require that NASA Partners provide NASA:

a. "New Technology Reports" disclosing each reportable item or subject invention developed under the contract within two months after the inventor discloses it in writing to the Contractor;

b. "Interim Reports" every 12 months from the date of the contract listing all reportable items or subject inventions required to be disclosed during the reporting period, or certifying that there were none; and

c. A "Final Report" prior to contract closeout listing all reportable items or subject inventions developed during performance of the contract, or certifying that there were none.

B.13 New Technology Reports are the primary means for identifying inventions and innovations developed under NASA contracts. The Agency is prevented from achieving full success in its commercial technology mission when innovations are not identified or reports are not submitted in a timely manner. Moreover, the Agency (and each Center) may be losing the benefit of royalty income received from the licensing of patents on inventions which NASA has funded, but has lost, through the contractor's failure to report.

B.14 It is important that the Government and the contractor know, protect, and exercise their rights in inventions,

discoveries, improvements, and innovations made in the performance of work under NASA funding agreements in order to ensure their expeditious availability to the public; foster commercial use; enable the Government, its contractors, and the public to avoid unnecessary payment of royalties; and defend themselves against claims and suits for infringement. To attain these ends, contracts having the New Technology clause or the Patent Rights clause (or a substantial equivalent thereof) should be administered so that:

- a. Reportable items and subject inventions are identified, disclosed, and reported;
- b. Requests for waiver of title or election of title, when appropriate, are timely made;
- c. The rights of the Government in reportable items and subject inventions are established;
- d. Where patent protection is appropriate, patent applications are timely filed;
- e. The rights of the Government in patent applications are documented by formal instruments such as licenses or assignments; and
- f. Expeditious commercial utilization of inventions is achieved.

B.15 A New Technology Representative and Patent Representative will be identified in each contract containing the New Technology clause (in contracts with large entities) or the Patent Rights clause (in contracts with small entities). These NASA personnel administer the clause, protect the Government's rights, and take other actions in relation thereto. Normally, the New Technology Representative will be the Technology Transfer Officer or the staff member (by titled position) having cognizance of technology utilization matters for the Center concerned; and the Patent Representative will be the Patent Counsel (by titled position) having cognizance of patent matters for the Center concerned. Disclosure by the contractor of inventions, interim reports, final reports, utilization reports, and other reports required by the New Technology or Patent Rights clause, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative unless transmitted in response to correspondence or request from the Patent Representative. Inquiries or requests regarding disposition of rights, election of rights, or related matters should be directed to the Patent Representative.

B.16 In order to protect the Government's rights in technology developed under funding agreements, the New Technology Representative should take the listed actions:

- a. Monitor technical progress reports to ascertain whether the contractor is complying with the new technology clause's reporting requirements;
- b. Receive and review New Technology, Interim and Final Reports from the contractor and determine, in consultation with the Contracting Officer's Representative (COR) or Program Manager (if necessary), whether submitted reports are acceptable;
- c. Request that the contractor submit Interim and/or Final Reports if not timely submitted;
- d. Forward to the Patent Representative copies of all New Technology Reports submitted by the contractor;
- e. Forward to the Patent Representative all correspondence relating to inventions and waivers under the New Technology clause or election of title under the Patent Rights clause;
- f. Enter New Technology Reporting information into NASA Technology Transfer System;
- g. If necessary, consult the COR or Program Manager, prior to requesting that the contractor reconsider and re-submit Interim Reports deemed to be incomplete;
- h. After consulting the COR or Program Manager (where necessary), request that the contractor submit any New Technology Reports listed on Interim and/or Final Reports that have not been previously submitted;
- i. Upon receipt of any final report required by the clause, and upon determination that all work is complete, determine whether the contractor has complied with the clause's reporting requirements. If so, the New Technology Representative will certify compliance, with concurrence from the Patent Representative, and forward the certification to the contracting/grants officer. Concurrence from the Patent Representative may be in the form of a letter or other written communication to the New Technology Representative that will serve as a blanket concurrence for defined categories of contracts/grants/cooperative agreements when established certification procedures are followed by the New Technology Representative. Consult the Patent Representative should an ambiguity, discrepancy, or response timeliness issue jeopardize the processing of New Technology Summary Reports and/or Final Reports.

B.17 The Contracting Officer's Representative (COR) or activity personnel should take the following actions:

- a. Monitor the technical progress of work performed under the contract to ascertain whether the contractor is

complying with the clause's reporting requirements; and

b. Review all Interim and Final Reports to determine whether all expected reportable items or subject inventions have been disclosed and provide input to the New Technology Representative.

B. 18 The Patent Representative should take the following actions:

a. Review each reportable item to ascertain whether it is to be considered a subject invention, and obtain any certifications/determinations required by the Patent Rights clause and the New Technology clause;

b. Review New Technology Reports to ensure that the contractor has provided sufficient information to protect the Government's rights and interests in it and to permit the preparation, filing, and prosecution of patent applications;

c. Enter patent related information into the NASA Technology Transfer System;

d. Determine invention ownership and rights, patentable subject matter, authorship of copyrightable software, and rights to intellectual property;

e. Ensure the preparation of instruments establishing the Government's rights; and

f. Determine when information disclosed in New Technology Reports may be publicly released and approve or deny requests for such public releases.

B.19 The Contracting Officer will not approve release of final payment under the contract and, if applicable, any reserve set aside under the withholding provisions of the clause for deficiencies and delinquent reporting not corrected as of the time of the submission of the final report by the contractor, until receipt of the New Technology Representative's certification of compliance, and the Patent Representative's concurrence.

Appendix C: References

- C.1 48 CFR § 27, Patents, Data, and Copyrights
- C.2 NPD 1000.0 NASA Governance and Strategic Management Handbook
- C.3 NPD 1000.3, The NASA Organization w/Change 51 and 52 (Dec 13, 2013)
- C.4 NPD 2090.6, Authority to Enter into License Agreements and Implementation of Licensing Authority
- C.5 NPD 2091.1, Inventions Made by Government Employees
- C.6 NPD 2092.1, Royalties and Other Payments Received by NASA from the Licensing or Assignment of Inventions (Revalidated 8/12/2008)
- C.7 NPD 2190.1, NASA Export Control Program
- C.8 NPD 2200.1, Management of NASA Scientific and Technical Information
- C.9 NPR 2190.1, NASA Export Control Program
- C.10 NPR 2210.1, Release of NASA Software
- C.11 NPR 9090.1, Reimbursable Agreements
- C.12 NPR 9220.1, Journal Voucher Preparation and Approval and Intragovernmental Transactions
- C.13 NPR 9880.1, NASA/s Management of Grants and Cooperative Agreements
- C.14 NPD 1001.0, 2014 NASA Strategic Plan
- C.15 NASA's Strategic Space Technology Investment Plan (NASA SSTIP) Released to public Feb 11, 2013. Accessed 1/13/2014 at: http://www.nasa.gov/sites/default/files/files/space_tech_2013.pdf
- C.16 H.R. 1249, Leahy-Smith America Invents Act

Appendix D: Partnership Mechanisms

D.1 Given the criteria above, technology transfer partnerships can be implemented by NASA via a broad set of mechanisms as follows:

- a. Space Act Agreements (SAAs): This includes non-reimbursable, reimbursable, and funded Space Act Agreements, where there is a technology development or technology transfer component to the work. All SAAs will be implemented in accordance with NPD 1050.1I, "Authority to Enter into Space Act Agreements."
- b. Inter-Agency Agreements: Inter-Agency Agreements (IAAs) are reimbursable or non-reimbursable agreements in which the Partner is another Federal Agency or Department. All IAAs will be implemented in accordance with NPD 1050.1I, "Authority to Enter into Space Act Agreements."
- c. Software Usage Agreements: Software Usage Agreements (SUAs) provide a mechanism for NASA to authorize the release and use of software created by or for NASA. External release of NASA software will comply with NPR 2210.1, "Release of NASA Software."
- d. Patent Licenses and Software Copyright Licenses: These agreements allow NASA to transfer technology where there is intellectual property protection in place. See Chapter 7, "Patent and Copyright Licensing" of this NPR.
- e. Research Licenses and Material Test & Evaluation Agreements: These agreements provide the opportunity for potential licensees to evaluate NASA technologies to determine if they have further interest in commercialization. See Chapter 7, "Patent and Copyright Licensing" of this NPR.
- f. Nondisclosure Agreements: Nondisclosure Agreements (NDAs) provide the mechanism to share enabling technical details of technology with potential licensees without that disclosure having an impact on the patentability of the technology.
- g. SBIR/STTR Program: The NASA Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs have technology commercialization as a primary goal of both programs and provide significant opportunity for commercialization of NASA-funded technology.
- h. Memoranda of Agreement or Understanding: Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU) is a form of non-reimbursable SAA, and either title may be used at the request of a U.S. State or Federal Government entity.
- i. Cooperative Research and Development Agreements (CRADAs): A CRADA is a mechanism whereby non-federal entities (industry, universities, nonprofits, etc.) can collaborate with federal laboratories on research and development projects. CRADAs are advantageous when technology transfer is a primary goal of the agreements; technologies developed under CRADAs are expected to be transferred to the private sector for commercial exploitation, either by the non-federal partner or another licensee of such technologies. Use of CRADAs is authorized by the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480). NASA has statutory authority to enter into CRADAs, but generally does not use this authority when NASA's and the Partner's technology transfer objectives can be met through an SAA.
- j. Cooperative Agreements: Cooperative Agreements between NASA and NASA Partners support research and development and provide technology transfer from the Government to the recipient. Projects that normally result in cooperative agreements are projects that are not intended to provide direct benefit to NASA, are expected to benefit the general public, require substantial cost sharing and have commercial applications and profit generating potential. Cooperative agreements are awarded in accordance with the procedures in the Grant and Cooperative Agreement Handbook (14 CFR § 1260) accessible at: https://prod.nais.nasa.gov/pub/pub_library/granta.html#1260123
- k. Cost-Sharing Contracts: Cost-sharing contracts are a procurement mechanism that allows for sharing costs associated with accomplishing the objectives when a direct benefit to NASA is expected.
- l. No-Cost Transfer Agreements: These agreements provide a documented mechanism for providing data, information, and research to non-NASA entities for potential commercial use when no intellectual property is involved.